

**Montana Board of Oil and Gas Conservation
Environmental Assessment**

Operator: Continental Resources, Inc.
Well Name/Number: Denman 1-7H
Location: SW SW Section 7 T26N R54E
County: Richland, **MT; Field (or Wildcat)** W/C Bakken Horizontal

Air Quality

(possible concerns)

Long drilling time: No, 30 to 40 days drilling time.

Unusually deep drilling (high horsepower rig): No, triple derrick drilling rig, 900-1000 HP to drill a single lateral Bakken Formation well to 19,174'MD/9422' TVD.

Possible H2S gas production: Slight chance of H2S gas production.

In/near Class I air quality area: No Class I air quality area.

Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:

☒ Air quality permit (AQB review)

☐ Gas plants/pipelines available for sour gas

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: No special concerns – using triple rig to drill a single lateral Bakken Formation well to 19,174'MD/9422' TVD.

Water Quality

(possible concerns)

Salt/oil based mud: Yes, oil based invert drilling mud system will be used on the intermediate string hole and saltwater for the horizontal lateral hole. Freshwater and freshwater mud system will be used on the surface hole.

High water table: No high water table anticipated.

Surface drainage leads to live water: No, closest drainage is Hanson Coulee, about 3/8 of a mile to the south of this location. Within Hanson Coulee are ponds, about 1 mile to the west southwest from this location.

Water well contamination: No, closest water wells are about 3/4 of a mile to the west and all other wells are 1 mile and further away from this location. Deepest well nearby is 320' deep and the shallowest well is 40'. Surface hole will be drilled with freshwater and freshwater drilling fluids to 1800'. Surface casing will be set and cemented from 1800' to surface.

Porous/permeable soils: No, sandy clay soils.

Class I stream drainage: No Class I stream drainages in the area of review.

Mitigation:

☒ Lined reserve pit

☒ Adequate surface casing

☐ Berms/dykes, re-routed drainage

☐ Closed mud system

☐ Off-site disposal of solids/liquids (in approved facility)

☐ Other: _____

Comments: 1800' of surface casing cemented to surface adequate to protect freshwater zones and to cover the Fox Hills Formation.

Soils/Vegetation/Land Use

(possible concerns)

Stream crossings: None anticipated, will utilize existing county road, #146.

High erosion potential: No, small cut, up to 4.8' and moderate fill, up to 10.2' required.

Loss of soil productivity: No, location will be restored after drilling, if nonproductive. If productive unused portion of drillsite will be reclaimed.

Unusually large wellsite: No, 500'X270' location size required.

Damage to improvements: Slight, surface use is hay ground and grassland.

Conflict with existing land use/values: Slight

Mitigation

☐ Avoid improvements (topographic tolerance)

☐ Exception location requested

☒ Stockpile topsoil

☐ Stream Crossing Permit (other agency review)

☒ Reclaim unused part of wellsite if productive

☐ Special construction methods to enhance reclamation

☐ Other _____

Comments: Will use existing county road, #146. A short access of about 767' will be built into this location off the existing county road. Oil based invert drilling muds will be recycled. Cuttings and mud solids will be buried in the lined pit. Completion fluids will be trucked to a Class II disposal. No special concerns

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Closest residences are about 1.125 miles to the northwest and 1.25 miles to the northeast from this location.

Possibility of H2S: Slight chance H2S.

Size of rig/length of drilling time: Triple drilling rig/short 30 to 40 days drilling time.

Mitigation:

☒ Proper BOP equipment

☐ Topographic sound barriers

☐ H2S contingency and/or evacuation plan

☐ Special equipment/procedures requirements

☐ Other: _____

Comments: Adequate surface casing and operational BOP should mitigate all problems. No concerns.

Wildlife/recreation

(possible concerns)

Proximity to sensitive wildlife areas (DFWP identified): None identified.

Proximity to recreation sites: None identified.

Creation of new access to wildlife habitat: No

Conflict with game range/refuge management: No

Threatened or endangered Species: Species identified as threatened by the USFWS are Pallid Sturgeon, Interior Lease Tern, Piping Plover and Whooping Crane. Species listed as candidate species are the Greater Sage Grouse and Sprague's Pipit. NH

tracker website for this Township and Range lists only species of concern as the Eastern Red Bat.

Mitigation:

- ☐ Avoidance (topographic tolerance/exception)
- ☐ Other agency review (DFWP, federal agencies, DSL)
- ☐ Screening/fencing of pits, drillsite
- ☐ Other: _____

Comments: Private surface lands. Eastern Red Bat inhabits Riparian Forest areas. This area is grassland. No concerns.

Historical/Cultural/Paleontological

(possible concerns)

Proximity to known sites None identified

Mitigation

- ☐ avoidance (topographic tolerance, location exception)
- ☐ other agency review (SHPO, DSL, federal agencies)
- ☐ Other: _____

Comments: On private surface lands. No concerns.

Social/Economic

(possible concerns)

- ☐ Substantial effect on tax base
- ☐ Create demand for new governmental services
- ☐ Population increase or relocation

Comments: No concerns

Remarks or Special Concerns for this site

Well is a single lateral Bakken Formation 19,174'MD/9422' TVD.

Summary: Evaluation of Impacts and Cumulative effects

No long term impact expected, some short term impacts will occur.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki
(title:) Chief Field Inspector
Date: March 24, 2011

Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC website

(Name and Agency)

Richland County water wells

(subject discussed)

March 24, 2011

(date)

US Fish and Wildlife, Region 6 website

(Name and Agency)

ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA
COUNTIES, Richland County

(subject discussed)

March 24, 2011

(date)

Montana Natural Heritage Program Website (FWP)

(Name and Agency)

Heritage State Rank= S1, S2, S3, T26N R54E

(subject discussed)

March 24, 2011

(date)

If location was inspected before permit approval:

Inspection date: ____

Inspector: _ _____

Others present during inspection: ____ _____